Rule interaction (order)

LING 451/551
Spring 2011
Prof. Hargus
Rule interaction

• Sometimes more than one phonological rule applies to a form
• Effects of rules can and should be separated
Votic (Finnic)

<table>
<thead>
<tr>
<th>Nominative</th>
<th>Partitive</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>vėrkko</td>
<td>vėrkkoʊa</td>
<td>'net'</td>
</tr>
<tr>
<td>čako</td>
<td>čakoa</td>
<td>'cuckoo'</td>
</tr>
<tr>
<td>lintu</td>
<td>lintua</td>
<td>'bird'</td>
</tr>
<tr>
<td>saatu</td>
<td>saatua</td>
<td>'garden'</td>
</tr>
<tr>
<td>yałka</td>
<td>yałkaa</td>
<td>'foot'</td>
</tr>
<tr>
<td>bočka</td>
<td>bočkaa</td>
<td>'barrel'</td>
</tr>
<tr>
<td>einaė</td>
<td>einaėae</td>
<td>'hay'</td>
</tr>
<tr>
<td>vėvū</td>
<td>vėvūae</td>
<td>'son-in-law'</td>
</tr>
</tbody>
</table>

‘the nominative has no suffix, and the partitive has the suffix –a or –æ’

< Odden 2005 (5.1, pp. 100-102)
Vowel harmony

partitive –[a] vs. –[æ]:
‘a suffix vowel is front if the preceding vowel is front’

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>vərkko</td>
<td>vərkkoæ</td>
<td>‘net’</td>
</tr>
<tr>
<td>ʧsako</td>
<td>ʧsakoæ</td>
<td>‘cuckoo’</td>
</tr>
</tbody>
</table>

Votic vowel inventory

i  y (ü)  u
e  ø  o
æ  a (a)
• ‘---the rule skips over the vowel [i],’

| łusti | łustia | ‘pretty’ |

• ‘but if there are no vowels other than [i] preceding, the harmony rule turns the suffix vowel into a front vowel’

| siili | siiliæ | ‘hedgehog’ |
'final vowel raising and fronting...whereby e and ə become [i] word-finally…’

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<tr>
<td>c. yarvi</td>
<td>yarvæa ‘lake’ [i]</td>
</tr>
<tr>
<td>mæči</td>
<td>mæčææ ‘hill’ [i]</td>
</tr>
<tr>
<td>čivi</td>
<td>čiveæ ‘stone’ [i]</td>
</tr>
<tr>
<td>[č] = [ʃ]</td>
<td></td>
</tr>
</tbody>
</table>

\[e\, ə \rightarrow \text{ i / ___ #} \]

\[
\text{[–low] } \rightarrow \text{ [–back] / ___ #}
\]

\[
\text{[–round] } \rightarrow \text{ [+high] / ___ #}
\]
‘In the last set of examples…the noun root underlyingly ends in the sequence /kə/, which can be seen directly in *kurkə-a*. However, the final CV of the root appears as [či] in the nominative *kurči*.’

\[
\begin{array}{ccc}
\text{d.} & \text{kurči} & \text{kurkəa} & \text{‘stork’} \\
\text{čči} & \text{ěkəa} & \text{‘straw’} \\
\text{kahči} & \text{kahkəa} & \text{‘birch’} \\
\end{array}
\]

‘It would be unrevealing to posit a rule changing word-final /kə#/ into [či#] in one step.’

Why?
• What’s wrong with /kə/ \(\rightarrow\) [ʧɪ] / ___ #?
  – duplication (of Final Fronting/Raising, /e ə/ \(\rightarrow\) i / ___ #)
    • uneconomical description of Votic: ‘such a rule treats it as a coincidence that the underlying final schwa actually becomes [i] on the surface by an independently necessary rule, so that much of the supposed rule applying to /kə#/ is not actually specific to /kə#/’.
  – complex rule
    • *2 foci/changes in one rule
    • ‘depends on a very specific conjunction of facts, that is, not just schwa, but word-final schwa’
  – ‘…not a process found in other languages’
    • ‘You may not know at this point that such a rule is not found in other languages—part of learning about phonology is learning what processes do exist in languages, something you will have a better basis for judging by the end of this book.’

• Instead, additional rule
  – Palatalization
    • k \(\rightarrow\) ʧ / ___ i
Another way to derive the correct forms in Votic

- Final fronting/raising applies before Palatalization:

**UR**
/kurkə/

**Final fronting/raising** i

**Palatalization** tʃ

**PR** [kurtʃi]
Properties of rule ordering in generative phonology

• Rules get exactly one chance to apply in a derivation

• Rules apply in the order given in the analysis (rule ordering may be part of analysis)

• Rules apply to the output of the preceding rule, not directly to the UR

• Rule order relations are transitive
  – if rule A precedes rule B, and rule B precedes rule C, then rule A precedes rule C
If the rules apply in the wrong order

UR /kurkə/

Palatalization --

Final fronting/raising i

PR *[kurki]

(rule names should be informative;
“Palatalization” vs. “rule 1”)

Ordering relations

When the output of one rule creates forms that can undergo another rule, the first rule “feeds” the second. (cf. Hayes 8.4.5)

E.g. Final fronting/raising feeds Palatalization:

UR /kurkə/
Final fronting/raising i
Palatalization ŏ
PR [kurtʃi]
Summary

• In looking for phonological patterns in data, effects of different rules can and should be separated

• Why?
  – Language-internal reasons
    • Rules are less complex
    • Avoids duplication of other rules
  – Theoretical reasons
    • What rules occur in different languages? What is a possible human phonological system?
Check for rule ordering

• When structural descriptions of rules overlap
• When structural description of one rule overlaps with structural change of another
• Votic rules
  – Final Fronting/Raising e, ø # → i #
  – Palatalization ki → tsi